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EXAMINER

LEMMA, SAMSON B

ART UNIT

PAPER NUMBER

2132

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/014,535	Applicant(s) ABDULKADER, BARBIR	
	Examiner Samson B. Lemma	Art Unit 2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 & 10-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


KAMBIZ ZAND
PRIMARY EXAMINER

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in reply to an amendment filed on February 01, 2006. Claim 9 is canceled. The rest of the **claims 1-8 and 10 are all** amended. New dependent claims 11-17 are added. Thus, **claims 1-8 and 10-17** are pending. Claims 1 and 10 are independent claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Based on a thorough review of the entire disclosure and a text search for **"piecewise continuous carrier signal"**, there is no "readily apparent support" in the disclosure for this limitation. Therefore the examiner does not see support for the amended limitation in claim 1 in particular for specific limitation "piecewise continuous carrier signal". Applicant argued that the amendment is fully supported by the specification as filed and directs the Examiner's to page 5 line 17 of the specification which states, "the values of these attributes are defined for the period required to transmit a "group of bits". They are then modified for each succeeding "group of bits". Applicant further argued that the disclosure on page 6 line 17 which states "...the technique includes changing the parameters of the 'noise signal at frequency intervals, viz, after every "group of bits" supports the amendment,

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“piecewise continuous carrier signal”. However this particular term has broader scope/meaning than what is described/recited above. Applicant is required to use a claim language/term that is recited in the specification. Though the language used in the claim amendment should not necessarily be exactly the same as what is described in the applicant original disclosure, the scope of the language used in the claim amendment is required to have a clear support from the specification without ambiguity.

Appropriate correction is required.

Response to Arguments

4. Applicant’s argument filed on February 01, 2006 have been fully considered but they are not persuasive. Applicant argued that **Wachs**) (U.S. Patent No: 6,226,491 B1) fails to teach the limitation of the independent claims 1 and 10.

Applicant first argument is referring to the independent claims 1 and 10.

Applicant wrote the following in support of his argument.

“Applicant note that the carrier signal is described as being generated on the basis of several parameters, which are then modified at defined time intervals. One skilled in the art will appreciate that unlike Wachs, which constantly modifies the carrier signal, the modification of the carrier signal for windows defined by “groups of bits” results in the creation of a piecewise continuous carrier. Not only does Wachs not teach a piecewise continuous carrier signal, it teaches away from it, but having the pseudo-randomly generated noise modulated onto the output of the local oscillator, which will result in a completely continuous function with a randomly varying component. As noted earlier, this requires complex synchronization of the pseudo-random noise generations in the transmitter and receiver, while the use of a “group of bits” based window allows for a much simpler synchronization. Accordingly, in view of

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the amendments to claim 1 and the argument presented above. It is submitted that claim 1 is patentable in view of both Liu and Wachs.”

Examiner disagrees.

Examiner would point out that Applicant argument is mostly on the advantage that the invention provides over the prior art used. And it is also directed to **term** “**piecewise continuous carrier signal**”. From the argument presented, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification which could provide advantage over the art used (such as use of a “group of bits” based window allows for a much simpler synchronization) in the rejection are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Besides there is nothing stated in the Wachs reference that the pseudo-randomly generated noise modulated onto the output of the local oscillator, which will result in a completely continuous function.

Overall what is stated as the core of the invention in the applicant disclosure undoubtedly is also disclosed by the reference/s on the record. For instance, **Wachs** in the abstract disclosed applicant core invention stated in previous claim as shown below.

A system and method for restricting access to a satellite repeater transponder (100) utilizes a pseudo-random noise generator (102) to automatically modulate a local oscillator (18) about a nominal frequency during frequency translation within the satellite transponder. The carrier signals of authorized user terminals (106) will be modulated with a matching or inverse noise waveform produced by a pseudo-random noise generator (114), so that the noise signal modulated onto the carrier signal will only be cancelled out in authorized transmissions. Thus, an unauthorized user terminal will be unable to recover the baseband signal due to insufficient carrier to noise ratio in the expanded bandwidth created by the pseudo-random frequency modulation in the satellite repeater. A system and method for restricting access to a satellite repeater

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transponder (100) utilizes a pseudo-random noise generator (102) to automatically modulate a local oscillator (18) about a nominal frequency during frequency translation within the satellite transponder. The carrier signals of authorized user terminals (106) will be modulated with a matching or inverse noise waveform produced by a pseudo-random noise generator (114), so that the noise signal modulated onto the carrier signal will only be cancelled out in authorized transmissions. Thus, an unauthorized user terminal will be unable to recover the baseband signal due to insufficient carrier to noise ratio in the expanded bandwidth created by the pseudo-random frequency modulation in the satellite repeater. A system and method for restricting access to a satellite repeater transponder (100) utilizes a pseudo-random noise generator (102) to automatically modulate a local oscillator (18) about a nominal frequency during frequency translation within the satellite transponder. **The carrier signals of authorized user terminals (106) will be modulated with a matching or inverse noise waveform produced by a pseudo-random noise generator (114), so that the noise signal modulated onto the carrier signal will only be cancelled out in authorized transmissions.** Thus, an unauthorized user terminal will be unable to recover the **baseband signal due to insufficient carrier to noise ratio in the expanded bandwidth created by the pseudo-random frequency modulation in the satellite repeater.**

For the sake of examination, **“piecewise continuous carrier signal”** as it is directed by the applicant is stated as “the pseudo-random signal with the modification of the carrier signal for windows defined by “groups of bits”. **Since “group of bits’ is such a relative term, given its broadest interpretation, the pseudo random signal of the reference/s meets the limitation of this “piecewise continuous signal”.**

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-8 and 10-17** are rejected under 35 U.S.C. 102(e) as being anticipated by **Wachs et al** (hereinafter referred as **Wachs**) (U.S. Patent No. 6,226,491 B1)

7. **As per claims 1 and 10, Wachs** discloses an encryption system comprising:

• **A transmitting device for modulating data signal onto a piecewise continuous carrier signal for transmitting the modulated signal onto the transmission medium.** [Abstract; column 3, lines 65-column 4, line 4; figure 2, ref. Num “102”; column 4, lines 15-24] (“piecewise continuous carrier signal” as it is directed by the applicant is stated as “the pseudo-random signal with the modification of the carrier signal for windows defined by “groups of bits”. Since “group of bits’ is such a relative terms, given its broadest interpretation, the pseudo random signal of the reference meets the limitation of this “piecewise continuous signal”. A transmitting device/ a satellite transponder/a satellite repeater shown has a receiving antenna subsystem located in said satellite repeater for receiving and modulating a carrier signal/data; a first pseudo-random noise generator located in said satellite repeater for generating a first pseudo-random waveform ;a mixer comprising a local oscillator, said

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local oscillator coupled to said first pseudo-random noise generator to modulate said carrier signal /data with said first pseudo-random waveform meets the limitation of the modification of the carrier signal for windows defined by "groups of bits" which is also equivalent to the "a pseudo-random signal for signaling over a transmission medium".;) and

- **A receiving device [figure 2, ref. Num "106" "user terminal"] for receiving said transmitted signal from the transmission medium and for recovering the data signal by removing said piecewise continuous carrier signal pseudo-random signal. [column 4, lines 35-38] (first of all, the pseudo-random signal meets the limitation of piecewise continuous carrier signal for the reason described in the argument above. And Wachs states that said authorized user terminal modulates said carrier signal with said second pseudo-random waveform to remove said first pseudo-random waveform from said carrier signal **said data by removing said pseudo-random signal.**)**

8. **As per claims 2 & 13-15, Wachs** discloses an encryption system as applied to claim 1 above. Furthermore **Wachs discloses the system wherein said transmitting device** [A transmitting device/ a satellite transponder/a satellite repeater] **further comprises: means to generate the piecewise continuous carrier signal; [figure 2, ref. "102"] (the piecewise continuous signal** which is equivalent to second pseudo-random signal as explained on claim 4 is a pseudo-random signal and Wachs discloses at least on column 4, lines 17-19, first pseudo-random noise generator located in said satellite repeater for generating a first pseudo-random waveform which is equivalent to "the second modulated signal/the piecewise continuous signal)

• Modulating means to modulate the data signal onto the generated carrier signal.; [column 4, lines 21-24] (a mixer comprising a local oscillator, said local oscillator coupled to said first pseudo-random noise generator to modulate said carrier signal with said first pseudo-random

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waveform); **transmitting means to send said modulated signal over a transmission medium [Figure 2; ref. Num "104";].** (wherein the receiving antenna of the transmitting device subsystem modulates said carrier signal received at said satellite repeater with said first pseudo-random waveform and said authorized user terminal modulates said carrier signal with said second pseudo-random waveform to remove said first pseudo-random waveform from said carrier signal and provide access of said authorized user terminals to said satellite repeater and wherein said first pseudo-random waveform is not removed from the carrier signal of unauthorized user terminals to restrict access of said unauthorized user terminals to said satellite repeater.)

9. **As per claim 3, Wachs discloses an encryption system as applied to claim 2 above.** Furthermore **Wachs** discloses the system wherein **said receiving device [figure 2; ref. Num "106"] further comprises means to receive the transmitted signal; [column 4, lines 25-30] (The transmitted signal as explained on claim 4 is a pseudo-random signal generated at the receiving side as shown on figure 2, ref. Num "114") and to means to generate the piecewise continuous carrier signal and means to demodulate signal said received transmitted signal, using the generated piecewise continuous carrier signal.**[column 4, lines 35-38] (said authorized user terminal modulates/demodulate said carrier signal with said second pseudo-random waveform to remove said first pseudo-random waveform from said carrier signal)

10. **As per claims 4 and 16 Wachs discloses an encryption system as applied to claim 3 above.** Furthermore **Wachs** discloses the system wherein the two **piecewise continuous signal are identical in phase and frequency, thereby simplifying the demodulation of said data signal [column 2, lines 15-20] (They are inherently identical because one is the inverse of the other.)**

11. **As per claim 5, Wachs discloses an encryption system as applied to claim 4 above.** Furthermore **Wachs** discloses the system wherein the parameters defining

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the phase, amplitude and frequency of said piecewise continuous carrier signal determined in accordance with an output of a pseudo-random number generator seeded with a key, thereby increasing the difficulty of an intruder planning to intercept said transmitted signal. [Column 2, lines 63-66 and column 1, lines 48-49] ("Inhibiting unauthorized user access").

12. **As per claims 6, 9 and 17, Wachs** discloses an encryption system as applied to claim 4 above. Furthermore Wachs discloses the system wherein said pseudo-random number generator is identically implemented at both the transmitting device [figure 2, ref. Num "102"] and receiving devices [figure 2, ref. Num "114"] and seeded with the same key [column 2, lines 63-66] so that parameters derived from both each pseudo-random number generator are the same and result in the same piecewise continuous carrier signal being generated, thereby ensuring correct reception of said transmitted signal. [column 2, lines 17-20; figure 2, ref. Num "104"; column 3, lines 40-45];

13. **As per claims 7-8 and 11-12 Wachs** discloses an encryption system as applied to claim 4 above. Furthermore Wachs discloses the system wherein the length of each segment in the **piecewise continuous carrier signal is defined in length** as a `group of bits` and the number of bits in a `group of bits` . (figure 2, ref. "102") (The second modulated signal as explained on claim 4 is a pseudo-random signal and Wachs discloses at least on column 4, lines 17-19, first pseudo-random noise generator located in said satellite repeater for generating a first pseudo-random waveform which is equivalent to "the second modulated signal" this process inherently contains manipulation of "group of bits")

14. **Claims 1-8 & 10-17** are rejected under 35 U.S.C. 102(b) as being anticipated by **Liu et al** (hereinafter referred as **Liu**) (U.S. Patent No. 5,982,809)

15. **As per claim 1-8 & 10-17, Liu** discloses an encryption system comprising:

• **A transmitting device for modulating a data on to a piecewise continuous carrier signal and for transmitting the modulated signal onto a transmission medium; and a receiving device for receiving said transmitting signal from the transmission medium and for recovering the data signal said piecewise continuous carrier signal by removing said pseudo-random signal** [column 1, lines 13-23 and column 12, lines 32-50] (“piecewise continuous carrier signal” as it is directed by the applicant is stated as “the pseudo-random signal with the modification of the carrier signal for windows defined by “groups of bits”. Since “group of bits’ is such a relative terms, given its broadest interpretation, the pseudo random signal of the reference meets the limitation of this “piecewise continuous signal”. The following is disclosed on column 1, lines 13- 23, “In a direct sequence spread spectrum communication system, each message symbol is spread into a plurality of chips using a pseudo-random (PN) sequence known to both the transmitter and the receiver. The plurality of chips are then modulated onto an analog carrier signal, such as an RF (radio frequency) signal, for transmission. The receiver down-converts the received signals to remove the analog carrier frequency. Ideally, a receiver can perform despreading to remove the PN sequence from the downconverted received signals with the replica of the PN sequence and recover the transmitted message symbols “ and Liu also discloses the following on column 12, lines 32-50, “In a direct sequence spread spectrum communication system, wherein digital spread spectrum signals modulated by a pseudo-random sequence have a carrier frequency, wherein the carrier frequency includes an expected carrier frequency and a carrier frequency offset, a carrier offset estimation method for recovering the carrier offset, comprising the steps of: receiving digital spread spectrum signals **modulated with a pseudo-random sequence**, wherein said digital spread spectrum signals have a carrier frequency, wherein the carrier

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frequency includes an expected carrier frequency and a carrier frequency offset; **demodulating said digital spread spectrum** signals to remove said expected carrier frequency, wherein said demodulating also includes demodulating said digital spread spectrum signals **to remove said pseudo-random sequence**, wherein said demodulating produces demodulated received signals and this meets all limitation of the independent claims 1 and 10 ")

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samson B Lemma whose telephone number is 571-272-3806. The examiner can normally be reached on Monday-Friday (8:00 am---4: 30 pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BARRON JR GILBERTO can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAMSON LEMMA

S.L

April 06, 2006



**KAMBIZ ZAND
PRIMARY EXAMINER**